



United States  
82269-3  
Patents

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION

Patent Number: 6,993,025 B1  
Issue Date: January 31, 2006  
Title: METHOD AND APPARATUS FOR ENCODING A PLURALITY OF PRE-DEFINED CODES INTO A SEARCH KEY AND FOR LOCATING A LONGEST MATCHING PRE-DEFINED CODE  
Applicants: Delfin Y. Montuno; James Aweya  
Examiner: Frank Duong  
Appln. Serial No.: 09/475,308  
Filing Date: December 30, 1999  
Agent's ref: 82269-3

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November 23, 2006

VIA COURIER

U.S. Commissioner of Patents and Trademarks  
U.S. Patent and Trademark Office  
Certificate of Correction Branch  
Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, Virginia 22314  
United States

Dear Sir:

**RECONSIDERATION REQUEST FOR CORRECTED PATENT OR  
CERTIFICATE OF CORRECTION**

Applicant respectfully requests reconsideration of Applicant's request for the corrections noted below be made to Patent Number **6,993,025 B1** issued **January 31, 2006** to **Delfin Y. Montuno et al.** and that a Corrected Patent or, alternatively, a Certificate of Correction be issued.

Corrections

In the Claims

In all of dependent claims 13-21, column 20, "wherein said memory processor is configured..." should read --wherein said memory is configured...--.

**REMARKS**

Applicant respectfully requests that a Certificate of Correction or corrected patent be issued pursuant to 37 C.F.R. 1.322(a) or (b). In this regard, Applicant encloses herewith a proposed Certificate of Correction for the Commissioner's approval and entry.

With respect to the nature of the corrections, Applicant respectfully notes that the above noted corrections are required to implement Amendments dated January 24, 2005.

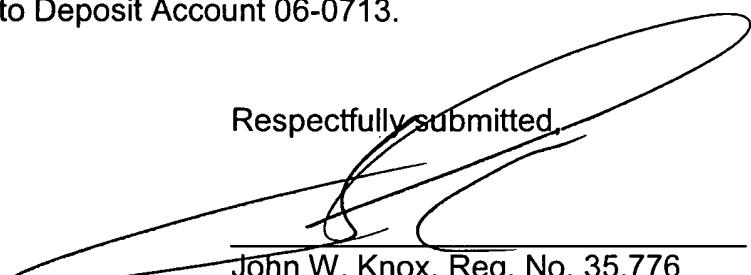
The Office mailed a Notice of Allowance on November 12, 2004, and Applicant paid the Issue Fee on December 16, 2004. However, on January 24, 2005, Applicant filed a Petition to Withdraw Application from Issue and a Request for Continued Examination in order to make Amendments dated January 24, 2005. Applicant encloses herewith a copy of the Petition to Withdraw Application from Issue, the Request for Continued Examination, and the Amendments that were filed on January 24, 2005.

The Office granted Applicant's Petition to Withdraw Application in a letter mailed February 4, 2005. The Office then mailed a second Notice of Allowance on March 16, 2005, ostensibly in response to Applicant's Amendments from January 24, 2005. On April 14, 2005, Applicant filed a Request to Re-Apply Issue Fee, and the Office issued Patent 6,993,025 B1 on January 31, 2006. However, the issued Patent 6,993,025 B1 does not reflect Applicant's Amendments dated January 24, 2005.

Applicant respectfully submits that the corrections are clerical or typographical in nature, and do not appear to have been the result of any mistake by the Applicant.

In view of the foregoing, applicant respectfully requests favorable reconsideration of this request for a Corrected Patent or Certificate of Correction. It is believed that no fees are owing in respect of this request, which is made pursuant to 35 U.S.C. 254 and 37 C.F.R. 1.322. However, the Commissioner is authorized to charge any fees which may be required or to credit any overpayment to Deposit Account 06-0713.

Respectfully submitted,

  
John W. Knox, Reg. No. 35,776  
SMART & BIGGAR  
Box 11560 Vancouver Centre  
2200 – 650 West Georgia Street  
Vancouver, British Columbia  
Canada V6B 4N8  
Telephone: 604-682-7295

JWK:JHG

Encl.: Proposed Certificate of Correction  
Copies of the Petition to Withdraw Application from Issue, the Request for Continued Examination, and the  
Amendments that were filed on January 24, 2005  
Acknowledgement Card



United States  
82269-3  
Patents

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**IN RE APPLICATION**

Serial Number: 09/475,308  
Group Art Unit: 2666  
Confirmation No.: 6190  
Examiner: Frank Duong  
Title: METHOD AND APPARATUS FOR ENCODING A PLURALITY OF PRE-DEFINED CODES INTO A SEARCH KEY AND FOR LOCATING A LONGEST MATCHING PRE-DEFINED CODE  
Filing Date: December 30, 1999  
Inventors: Delfin Y. Montuno; James Aweya  
Agent's ref: 82269-3

January 24, 2005

**URGENT**

**BY FAX Office of Petitions: 571-273-0025**

Office of Petitions  
Attn: Ervin Dingle, Phone 571-272-3210  
U.S. Commissioner of Patents and Trademarks  
U.S. Patent and Trademark Office  
Alexandria, VA 22314  
United States

Dear Sir:

*I hereby certify that this correspondence is being facsimile transmitted to the Patent and Trademark Office Fax No. 571-273-0025 on January 24, 2005.*

*Typed or printed name of person signing this certificate*

*John W. Knox, Reg. No. 35,776*

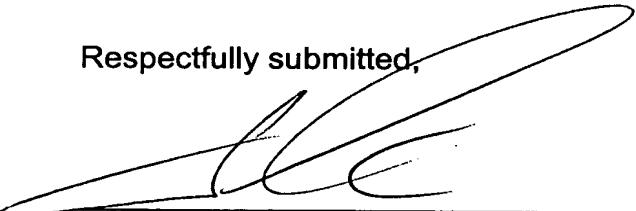
**PETITION UNDER 37 CFR 1.313(c)(2) TO  
WITHDRAW APPLICATION FROM ISSUE**

A Notice of Allowance was mailed in the subject case on November 12, 2004 specifying a due date for payment of the issue fee of February 14, 2005. On or about December 16, 2004, Applicant submitted the issue fee. Subsequently, an editorial error was noticed in the claims.

The nature of the error is as follows. In an amendment filed May 20, 2004, Applicant inadvertently amended the language "processor circuit" to read "memory processor", instead of "memory" (as in "memory configured to direct the processor circuit [to perform certain actions]...). This may cause some ambiguity in the affected claims. Unfortunately, the Examiner appears to have missed the error as well. Applicant proposes to cure the error by deleting the word "processor" following the word "memory" in the affected claims, and requests that the Examiner consider this amendment in the accompanying Request for Continued Examination (RCE).

Applicant respectfully urgently requests that this petition be granted, and also requests further favorable consideration of the application. The Office is authorized to charge the petition fee of \$130.00 set forth in 37 CFR 1.17(h), and any other appropriate fees, to Applicant's Deposit Account No. 06-0713.

Respectfully submitted,



John W. Knox, Reg. No. 35,776  
SMART & BIGGAR  
Box 11560 Vancouver Centre  
2200 – 650 West Georgia Street  
Vancouver, British Columbia  
Canada V6B 4N8  
Telephone: 604-682-7295

JWK:DAG:cmm



United States  
82269-3  
Patents

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**IN RE APPLICATION**

Serial Number: 09/475,308  
Group Art Unit: 2666  
Confirmation No.: 6190  
Examiner: Frank Duong  
Title: METHOD AND APPARATUS FOR ENCODING A PLURALITY OF PRE-DEFINED CODES INTO A SEARCH KEY AND FOR LOCATING A LONGEST MATCHING PRE-DEFINED CODE  
Filing Date: December 30, 1999  
Inventors: Delfin Y. Montuno; James Aweya  
Agent's ref: 82269-3

January 24, 2005

U.S. Commissioner of Patents and Trademarks  
U.S. Patent and Trademark Office  
Attn: Ervin Dingle, Phone 571-272-3210  
Alexandria, VA 22314  
United States

**VIA FACSIMILE ONLY**

Dear Sir:

*I hereby certify that this correspondence is being facsimile transmitted to the Patent and Trademark Office Fax No. 571-273-0025 on January 24, 2005.*

*Typed or printed name of person signing this certificate*

*John W. Knox, Reg. No. 35,776*

*Certification of Transmission*

**PRELIMINARY AMENDMENT**

Applicant respectfully requests that the following amendments be made to the above identified application:

**Amendments to the Claims** are reflected in the listing of claims which begins on page 2 of this paper.

**Remarks/Arguments** begin on page 8 of this paper.

## **AMENDMENTS TO THE CLAIMS**

Without prejudice, please amend the claims as reflected in the following listing of claims, which will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Original) A method of encoding a plurality of predefined codes into a search key, the method comprising:
  - a) producing a Prefix Node Bit Array (PNBA) having a plurality of bit positions corresponding to possible bit combinations of a bit string having a length equal to or less than the longest predefined code in said plurality of said pre-defined codes such that said bit positions are arranged by the lengths of said possible bit combinations and by numeric value of said possible bit combinations; and
  - b) setting bits active in bit positions which correspond to bit combinations of said possible bit combinations identified by said pre-defined codes.
2. (Original) The method claimed in claim 1 wherein producing comprises arranging said bit positions in order by ascending lengths of corresponding said possible bit combinations.
3. (Original) The method claimed in claim 2 wherein producing comprises further arranging said bit positions in order by ascending numeric value of corresponding said possible bit combinations.

4. (Original) The method claimed in claim 1 further comprising producing a next hop array associating bit positions of said PNBA which have active bits with routing information for use by a router to route a packet.
5. (Original) The method claimed in claim 1 wherein producing comprises producing a plurality of PNBAAs, each PNBA corresponding to a sub-group of bits of said pre-defined codes.
6. (Original) The method claimed in claim 5 further comprising producing an External Subtree Root Bit Array (ESRBA) for each PNBA, said ESRBA having bit positions corresponding to possible further subgroups of bits of said pre-defined codes.
7. (Original) The method claimed in claim 6 further comprising producing a plurality of pages, each page comprising a plurality of PNBA-ESRBA pairs.
8. (Original) The method claimed in claim 6 further comprising producing a next hop array associating bit positions of said PNBA which have active bits with routing information for use by a router to route a packet.
9. (Original) The method claimed in claim 8 further comprising associating with each of said PNBAAs a next hop pointer pointing to a position in said next hop array at which next hop information associated with a first active bit of said PNBA is located.
10. (Original) The method claimed in claim 9 further comprising arranging said plurality of PNBAAs into a plurality of respective pages, each page comprising a PNBA, an associated ESRBA, an associated next hop pointer and a next page pointer pointing to a next page in said plurality of respective pages to be searched.

11. (Previously presented) An apparatus for encoding a plurality of predefined codes into a search key, the apparatus comprising:

  - a) means for producing a Prefix Node Bit Array (PNBA) having a plurality of bit positions corresponding to possible bit combinations of a bit string having a length equal to or less than the longest predefined code in said plurality of said pre-defined codes such that said bit positions are arranged by the lengths of said possible bit combinations and by numeric value of said bit combinations; and
  - b) means for setting bits active in bit positions which correspond to bit combinations of said possible bit combinations identified by said pre-defined codes.
12. (Previously presented) An apparatus for encoding a plurality of predefined codes into a search key, the apparatus comprising a processor circuit and memory in communication with the processor circuit, said memory being configured to direct the processor circuit to:

  - a) produce a Prefix Node Bit Array (PNBA) having a plurality of bit positions corresponding to possible bit combinations of a bit string having a length equal to or less than the longest predefined code in said plurality of said pre-defined codes such that said bit positions are arranged by the lengths of said possible bit combinations and by numeric value of said bit combinations, and

- b) set bits active in bit positions which correspond to bit combinations of said possible bit combinations identified by said pre-defined codes.
13. (Currently amended) The apparatus claimed in claim 12 wherein said memory processor—is configured to direct said processor circuit to arrange said bit positions in order by ascending lengths of corresponding said possible bit combinations.
14. (Currently amended) The apparatus claimed in claim 13 wherein said memory processor—is configured to direct said processor circuit to further arrange said bit positions in order by ascending numeric value of corresponding said possible bit combinations.
15. (Currently amended) The apparatus claimed in claim 12 wherein said memory processor—is configured to direct said processor circuit to produce a next hop array associating bit positions of said PNBA which have active bits with routing information for use by a router to route a packet.
16. (Currently amended) The apparatus claimed in claim 12 wherein said memory processor—is configured to direct said processor circuit to produce a plurality of PNBA<sub>s</sub>, each PNBA corresponding to a sub-group of bits of said pre-defined codes.
17. (Currently amended) The apparatus claimed in claim 16 wherein said memory processor—is configured to direct said processor circuit to produce an External Subtree Root Bit Array (ESRBA) for each PNBA, said ESRBA having bit positions corresponding to possible further subgroups of bits of said pre-defined codes.

18. (Currently amended) The apparatus claimed in claim 17 wherein said memory processor—is configured to direct said processor circuit to produce a plurality of pages, each page comprising a plurality of PNBA-ESRBA pairs.
  19. (Currently amended) The apparatus claimed in claim 17 wherein said memory processor—is configured to direct said processor circuit to produce a next hop array associating bit positions of said PNBA which have active bits with routing information for use by a router to route a packet.
  20. (Currently amended) The apparatus claimed in claim 19 wherein said memory processor—is configured to direct said processor circuit to associate with each of said PNBAAs a next hop pointer pointing to a position in said next hop array at which next hop information associated with a first active bit of said PNBA is located.
  21. (Currently amended) The apparatus claimed in claim 20 wherein said memory processor—is configured to direct said processor circuit to arrange said plurality of PNBAAs into a plurality of respective pages, each page comprising a PNBA, an associated ESRBA, an associated next hop pointer and a next page pointer pointing to a next page in said plurality of respective pages to be searched.
- 22.-70. (Canceled)
71. (Previously presented) A computer readable medium encoded with codes for directing a processor circuit to carry out the steps recited in claim 1.

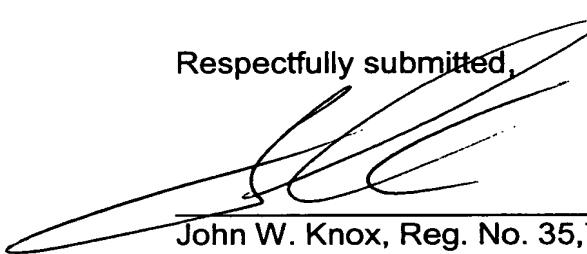
72. (Previously presented) A computer readable signal encoded with codes for directing a processor circuit to carry out the steps recited in claim 1.

## **REMARKS**

Claims 13-21 have been amended to correct editorial errors. No new subject matter has been added.

Applicant respectfully requests further favorable consideration of the application.

Respectfully submitted,



John W. Knox, Reg. No. 35,776  
SMART & BIGGAR  
Box 11560 Vancouver Centre  
2200 – 650 West Georgia Street  
Vancouver, British Columbia  
Canada V6B 4N8  
Telephone: 604-682-7295

JWK:cmm



**REQUEST  
FOR  
CONTINUED EXAMINATION (RCE)  
TRANSMITTAL**

**Address to:  
Mail Stop RCE  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450**

<b>Application Number</b>	09/475,308
<b>Filing Date</b>	December 30, 1999
<b>First Named Inventor</b>	Delfin Y. Montuno
<b>Art Unit</b>	2666
<b>Examiner Name</b>	Frank Duong
<b>Attorney Docket Number</b>	82269-3

**This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.**  
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO ) on page 2.

1. **Submission required under 37 CFR 1.114**

Note: If the RCE is proper, any previously filed unentered amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

a.  Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

i.  Consider the arguments in the Appeal Brief or Reply Brief previously filed on \_\_\_\_\_

ii.  Other \_\_\_\_\_

b.  Enclosed

i.  Amendment/Reply      iii.  Information Disclosure Statement (IDS)  
 ii.  Affidavit(s)/Declaration(s)      iv.  Other \_\_\_\_\_

2. **Miscellaneous**

a.  Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of \_\_\_\_\_ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

b.  Other \_\_\_\_\_

3. **Fees** The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

a.  The Director is hereby authorized to charge the following fees, or credit any overpayments, to Deposit Account No. 06-0713

i.  RCE fee required under 37 CFR 1.17(e)

ii.  Extension of time fee (37 CFR 1.136 and 1.17)

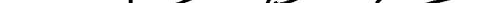
iii.  Other Petition Under 37 CFR 1.313(c) to Withdraw from Issue

b.  Check in the amount of \$ \_\_\_\_\_ enclosed

c.  Payment by credit card (Form PTO-2038 enclosed)

**WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**

**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED**

<b>Name</b> (Print / Type)	<b>John W. Knox</b>	<b>Registration No.</b> (Attorney / Agent)	<b>35,776</b>
<b>Signature</b>		<b>Date</b>	<b>January 24, 2005</b>

**CERTIFICATE OF MAILING OR TRANSMISSION**

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.

<i>Name (Print / Type)</i>			
<i>Signature</i>		<i>Date</i>	

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing the burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

## Transaction List



Search by

 Accounting Date:

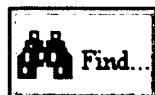
Operator ID:

(MMDDYY)

Accounting Date

Starts:

Ends:

 Name/Number:

09475308

 Attny Docket No.: Deposit Account No.:

Accounting Date	Operator ID	Seq. No.	Txn Src	Fee Code	St	Amount	Name/Number	Dep Acct
12/14/2005	DTERRY	13	SALE	1501	A	1,400.00	09475308	060713
12/14/2005	DTERRY	12	ADJ	1501	A	-1,400.00	09475308	060713
02/04/2005	AKELLEY	7	SALE	1501	R	1,400.00	09475308	060713
02/04/2005	AKELLEY	6	SALE	1801	A	790.00	09475308	060713
02/04/2005	AKELLEY	5	SALE	1464	A	130.00	09475308	060713
04/25/2000	DNGUYEN	19	SALE	581	A	40.00	09475308	
04/03/2000	MMARMOL	94	SALE	102	A	234.00	09475308	
04/03/2000	MMARMOL	93	SALE	103	A	900.00	09475308	
04/03/2000	MMARMOL	92	SALE	105	A	130.00	09475308	
04/03/2000	MMARMOL	91	SALE	101	A	690.00	09475308	



Adjustment Detail

Authorization Detail



# UNITED STATES PATENT AND TRADEMARK OFFICE

## CERTIFICATE OF CORRECTION

PATENT NO : 6,99,025 B1

DATED : November 17, 2006

INVENTOR(S) : Deflin Y. Montuon; James Aweya

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 20, line 17, the text reading "memory processor" should be changed to --memory--.  
 Column 20, line 21, the text reading "memory processor" should be changed to --memory--.  
 Column 20, line 26, the text reading "memory processor" should be changed to --memory--.  
 Column 20, line 31, the text reading "memory processor" should be changed to --memory--.  
 Column 20, line 35, the text reading "memory processor" should be changed to --memory--.  
 Column 20, line 41, the text reading "memory processor" should be changed to --memory--.  
 Column 20, line 44, the text reading "memory processor" should be changed to --memory--.  
 Column 20, line 49, the text reading "memory processor" should be changed to --memory--.  
 Column 20, line 55, the text reading "memory processor" should be changed to --memory--.

MAILING ADDRESS OF SENDER: John W. Knox

PATENT NO. 6,993,025 B1

Smart & Biggar  
 Box 11560, Vancouver Centre  
 2200 - 650 West Georgia Street  
 Vancouver, B.C., Canada V6B 4N8

No. of additional copies



This collection of information is required by 37 CFR 1.8. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing the burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450,

*If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.*